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10/083,177	02/25/2002	Ching Man Stanley Tsui	P/4076-19	5117

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EXAMINER
PATEL, PARESH H

ART UNIT	PAPER NUMBER
2829	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,177	Applicant(s) TSUI ET AL.	
	Examiner Paresh Patel	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., test the device *after* they are separated, wherein after is not claimed) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant later describes method steps of claim 1 and then argues that components are singulated *then* tested. Here again, applicant argues the limitation that is not in claim. Method steps as claimed do not determine the order in which they perform because terms "after" or "then" as argued is not claimed.

With respect claim 8 (Currently amended), applicant argues that Atkins et al. do not teach or suggest testing of singulated components. Examiner disagrees because claimed testing device is *operative to test* each of said *singulated* components. Atkins's at lines 54-62 of column 6 inherently suggests the use of testing device *to test* each of said *singulated* (semi-scribed) components (dies).

With respect to claims 7 (Currently amended), applicant argues that method of marking by passing the laser beam through the film of laser transparent tape towards the adhesive surface thereof is not physically possible with Atkins. Here, applicant did

not provide any teaching why this step is not physically possible with Atkins. As stated in last office action at lines 23-25 of column 3, 41-49 of column 5 and lines 39-42 of column 6 Atkins suggests the use of laser device to mark surface of an electronic device.

With respect to claim 12 applicants argues that use of conveyor belts, automated carts or racks (to transport the vessel or electronic component such as wafer) is no suggestion that such devices move the electronic component in rotary axes. Examiner disagrees because a person having ordinary skill in the art can move the electronic component in rotary axes using above device(s) as suggested by Atkins at lines 11-25 of column 6.

With respect to claim 14, Applicant argues that Khandros vacuum chuck does not hold a support frame and film on which electronic component are mountable, it has been held that the test for obviousness is not whether the feathers of one reference may be bodily incorporated into the other to produce the claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the art in the pertinent art. *In re Bozek,* 163 USPQ 545 (CCPA 1969).

With respect to claim 19, applicant argues that neither of robot and vacuum arm of Atkins are act on the mounting device and are used to invert anything. Examiner disagrees because inverting device is used to invert each electronic component to the laser device **for marking**. Inverting device such as well-known robot can be used to invert anything. Here, it is a design choice because Atkins discloses **marking** of each electronic component with a laser device.

Littlebury reference teaches and suggests the claimed invention as stated below. Littlebury reference teaches orientation of singulated electronic component for testing and to record pass/fail information to separate good from bad. Atkins marks electronic component with laser to distinguish good from bad. Spanjer teaches improved marking material to mark electronic component using laser device. Hence, it is obvious to combine all these references.

Claim Objections

Claim 8 is objected to because of the following informalities: "mounting electronic component" should read --mounting unsingulated array of electronic component and "singulated component" should read --singulated electronic component--.

Claim 18 is objected to because of the following informalities: "therebythrough" should read --thereby through--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-13 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkins et al. (US 5570032).

Regarding claims 1 and 8, Atkins et al. (hereafter Atkins) in fig. 3-8 discloses: an apparatus for processing an unsingulated array of electronic components [wafer and 7 of fig. 2] comprising:

providing a mounting means [a vessel and lines 60-67 of column 5] for mounting unsingulated electronic components;

a singulating device [singulation system 41 and lines 39-42 of column 6] for singulating the said array of electronic components;

and a testing device [external test circuitry and lines 26-29 of column 6] operative to test each of the said singulated components for defects;

whereby singulation and testing of singulated electronic components are conducted while they are mounted on the mounting means without removal therefrom [lines 1-52 of column 6].

Regarding claims 2 and 9, Atkins discloses: an inscribing device [lines 39-42 of column 6] for marking to distinguish non-defective ones of the electronic components from defective ones [using map information see lines 26-34 of column 3] while they are mounted on the mounting means.

Regarding claims 3 and 10, Atkins discloses: the singulation, testing and marking are carried out at two or more stations of the apparatus [lines 11-15, 26-29 and 39-40 of column 6].

Regarding claims 4 and 11, Atkins discloses: moving means for moving the electronic components for processing at least between the testing and marking positions [lines 11-25 of column 6].

Regarding claim 12, Atkins discloses: the moving means is adapted to move the electronic components in linear and rotary axes, such as an XYZ-Theta table [inherent to a queue and transport at lines 11-25 of column 6].

Regarding claim 13, Atkins discloses: the mounting means comprises a film of material having an adhesive [18 or 35] on one side and stretched on a support frame [17 or 33], whereby electronic components are mountable on the adhesive side.

Regarding claims 5 and 15, Atkins discloses: an orienting device [robot means, lines 16-17 of column 5 and lines 4-7 of column 6] to adjust alignment of electronic components and/or to locate the positions of defective components.

Regarding claim 16, Atkins discloses: the orienting device is an image recognition vision system [lines 16-21 of column 5].

Regarding claims 6 and 17, Atkins discloses: the inscribing device is a laser device [inherent to lines 17-20 of column 6] which generates a laser beam to mark a surface of an electronic device by heating said surface [heating the surface is inherent during marking].

Claims 1, 8, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Littlebury (US 5008615)

Regarding claims 1 and 8, Littlebury in fig. 1-4 discloses: an apparatus [see abstract] for processing an unsingulated array of electronic components [fig. 1] comprising:

providing a mounting means [11] for mounting unsingulated electronic components;

a singulating device [linherent to lines 7-17 of column 3]] for singulating the said array of electronic components;

and a testing device [27] operative to test each of the said singulated components for defects [lines 62-38 of column 2];

whereby singulation and testing of singulated electronic components are conducted while they are mounted on the mounting means without removal therefrom [fig.3 and lines 19-22 of column 3].

Regarding claims 20 and 21, Littlebury discloses: the electronic component comprises molded semiconductor packages [12].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins et al. as applied to claims 6, 2, 1 and 17, 10, 8 above, and further in view of Spanjer (US 4753863).

Regarding claims 7 and 18, Atkins discloses: the mounting means comprises a film of transparent tape [inherent to epoxy] with an adhesive surface [lines 41-49 of column 5] on which electronic components are mountable.

Atkins does not teach the laser device is operative to direct the laser beam generated thereby **through the film toward the adhesive surface thereof** to mark electronic components that is mounted on said adhesive. Rather, Atkins teaches marking of the electronic component with laser device [lines 27-34 of column 3 and lines 39-43 of column 6]. Spanjer discloses the laser device [10] is operative to direct the laser beam [15a-b] generated thereby **through** [fig. 1-3] **the film** [laser markable material] **toward the adhesive surface thereof** to mark electronic components that is mounted on said adhesive. It is obvious to one having ordinary skill in the art to replace a film of Atkins with an improved laser marking material as suggested by Spanjer, in order to obtain laser marking on electronic component with high degree of color contrast and less degradation with time and temperature.

Regarding claims 20 and 21, Spanjer discloses: the electronic component comprises molded semiconductor packages [16 and lines 53-61 of column 1].

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins as applied to claims 13 and 8 above, and further in view of Khandros et al. (US 6064213).

Regarding claim 14, Atkins discloses all the essential elements of the claimed invention except for a vacuum chuck. Rather, Atkins discloses a plate [19] which provides sturdy, rigid support. Khandros et al. (hereafter Khandros) discloses a vacuum chuck [104]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus if Atkins with vacuum chuck of Khandros, in order to hold the support member using vacuum for testing and marking the singulated electronic components.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins.

Regarding claim 19, Atkins discloses: an inverting device [robot and vacuum arm]. Atkins inverting device is not used to invert the transparent tape to expose the surface of each electronic component that is mounted on said adhesive surface of the transparent tape to the laser device for marking. It is obvious to use inverting device of Atkins to invert the transparent tape to expose the surface of each electronic component to the laser device for marking, in order to laser-mark a backside of the electronic component for identification.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 703-306-5859. The examiner can normally be reached on M-F (8:30 to 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Paresh Patel
May 30, 2003